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The duration of parturition is similar for confined and loose-housed sows

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Confinement of sows in farrowing crates limits the ability of sows to perform nest-building behaviour and affects physiology as well as maternal behaviour (Jarvis *et al.*, 2004). Increased physiological stress can adversely affect the process of parturition, and restricting sows in crates during the nest-building phase may thus have a negative impact on the progress of parturition, resulting in prolonged farrowing and longer birth intervals. The hypothesis tested in this study was that sows loose-housed in farrowing pens would have a shorter duration of parturition and shorter birth intervals compared to sows in farrowing crates.

This experiment was conducted using 123 multiparous sows (Landrace x Yorkshire). The animals were randomly allocated to two treatment groups, either confined in farrowing crates or loose-housed in farrowing pens before and during parturition. All sows were housed in identical pens and were fed and managed equally, so the only difference was whether the sows were confined or loose before and during parturition. Farrowings were video recorded and piglet birth details were collated from observation of the video records. Duration of parturition was defined as the time between the expulsion of the first and the last born piglet, and as the time between expulsion of the first and last live born piglet. Birth interval was calculated as the time between expulsion of two succeeding piglets and birth duration as the time from birth of the first to the n'th piglet. Duration of parturition, birth intervals and birth durations were square-root transformed to ensure homogeneity of variance and normal distribution of the data and subsequently analysed by use of generalised linear mixed models using SAS (ver. 9.3).

As expected, the total number of piglets born and parity of sows did not differ between treatments. The mean (±SE) number of total born piglets was 18.4±0.4 piglets per litter and mean parity of sows was 3.4±0.2. There were no differences in duration of parturition, birth duration or birth interval (Table 1). Birth interval was, however, shorter for piglets born to younger (parity one and two) compared to older (parity three or more) sows ($P<0.05$). Moreover, birth interval was longer for piglets born in litters with 7-16 total born piglets compared to litters with 21-28 total born piglets ($P<0.05$).

Table 1. *Duration of parturition, birth interval and birth duration for confined and loose-housed sows [values are presented as medians and numbers in parentheses are quartiles, (P25; P75)].*

	Crates	Pens	Significance
Number	63	60	
Duration of parturition (min)			
First piglet to last born piglet	390 (264; 646)	417 (234; 583)	0.52
First piglet to last live born piglet	353 (249; 528)	390 (225; 506)	0.30
Birth interval (min)	11 (5; 25)	11 (5; 26)	0.59
Birth duration (min)	188 (94; 318)	168 (86; 307)	0.46

In the current experiment, in which both confined and loose-housed sows had access to straw, the progress of parturition was similar for the two treatments. These results differ from Oliviero *et al.* (2008) who found longer farrowing duration in crates compared to pens. However, only sows in pens were provided straw in that study. Jarvis *et al.* (2004) found that housing sows in pens or crates did not influence the progress of parturition and they suggested that provision of rooting material might be more important than provision of space for nest building. Our results were in accordance with Jarvis *et al.* (2004) as space alone did not influence progress of parturition. In conclusion and contrary to our hypothesis, confining the sows in crates before farrowing did not affect the progress of parturition.

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